

Attorney Docket No. 45888-1

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the binder taught by Taylor with the delay composition of Dufrane since Taylor suggests that the binder is useful in delay compositions.

This is not, in fact, the case. Taylor et al. relates to the manufacture of "primary explosives" (Col. 1, lines 14 and 15). It is stated in Col. 1, lines 35 - 42 that:

The primary explosives with which the present invention is concerned are crystalline, essentially water-insoluble compounds which may generally be prepared by precipitation the primary explosive from aqueous solution, the precipitation resulting from a double decomposition reaction between two suitable reactants in aqueous solution or suspension, or from the crystallisation of the primary explosive from solution.

Despite the reference in Col. 1, lines 18 and 19 to "delay purposes", these substances are clearly not the delay compositions of the present invention (compositions that burn away rapidly, but not instantly - see page 1, para [0002]). Instead of being relatively slow burning compositions, they are unstable explosive materials, such as lead azide, that produce a "detonation wave" (Col. 1, line 22). Consequently, Taylor et al. is not concerned with the same type of compositions as those of Dufrane et al., so there would be no motivation to combine these references and no useful result from doing so.

Also, the carboxymethylcellulose of the present invention is used as a binder whose function is to agglomerate collections of individual particles into larger free-flowing granules (page 9, para [0034]). In Taylor et al., "The superiority of physical form of the explosives of the present invention is believed to be due to the formation of an insoluble metal salt of carboxymethyl cellulose in the solution from which the primary explosive is precipitated" (Col. 3, lines 8 - 11). The precipitation of the explosive involves reaction of starting materials or crystallization or recrystallization (Col. 3, lines 26 - 31). In contrast, the present invention uses the carboxymethyl cellulose (or other binder) by wet mixing by standard methods of wet mixing, granulation and drying (page 9, para [0034]). It therefore seems that Taylor et al. discloses a very specific procedure employable only with primary explosives that are produced by co-reaction or crystallization. There is therefore no reason for a person skilled in the art to view this as relevant to the present invention which merely involves wet mixing of solids that do not appear to react together.

It is therefore not seen that Taylor et al. is relevant to the present invention nor to Dufrane et al. Withdrawal of the rejection on this ground is therefore requested.

Applicant would also like to address the teaching of Dufrane et al. taken alone.

Dufrane et al. relates to apparatus that includes delay elements containing delay compositions, among other elements (e.g. a transition element). The delay element and composition are described in the following terms (Col. 4, lines 9 to 17):

The delay element 27 contains a shaped delay composition 30 inside a metal tube 31, e.g., lead. The delay composition may be of any known in the art, for example, a mixture of silicon and lead dioxide (PbO_2); silicon and red lead oxide (Pb_3O_4); silicon, red lead oxide (Pb_3O_4) and barium sulfate ($BaSO_4$); tungsten, potassium perchlorate ($KClO_4$) and barium chromate ($BaCrO_4$); molybdenum and potassium perchlorate ($KClO_4$); and mixtures thereof.

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Consequently, Dufrane et al. discloses mixtures of silicon, red lead and barium sulfate for use as delay composition in metal delay elements made, for example, of lead. No relative proportions for the three ingredients are given and there is no mention of the use of "rigid" metals for the delay element.

Dufrane et al. clearly relates to delay compositions of any kind known in the art (i.e. prior art to Dufrane et al.). Dufrane does not claim to have come up with a new delay composition, but is saying that any known composition may be used in the specific invention disclosed. Dufrane et al. therefore only discloses conventional (at the time of the Dufrane application) compositions. Applicant submits that compositions known at the time of Dufrane et al. did not have the composition claimed in the present application, as the Examiners search has shown (the Examiner found no references having the relative proportions of ingredients claimed in the present application).

The Examiner stated:

It would also be obvious to vary the amounts of the ingredients to optimize the performance of the delay composition. It is well settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art.

However, Dufrane et al. discloses only delay elements made of lead. A person of ordinary skill in the art would not choose the composition of the present invention for such a delay element. There is therefore no motivation for a person skilled in the art, from a reading of Dufrane et al., to develop the compositions of the present invention. Moreover, which variable of the three-component mixture of Dufrane et al. should be varied? There is no suggestion in Dufrane et al. that red lead is an ingredient to focus on in order to vary the composition for any purpose whatsoever. In fact, it appears from Dufrane et al. that red lead may be replaced by lead dioxide (PbO_2). If anything, this indicates that red lead is not an essential ingredient at all, and nor is barium sulfate. Thus, Dufrane et al. suggests mixtures and combinations that do not even have the three essential ingredients of the present application. There is thus no motivation or direction to use try the specific mixtures of the present invention. With such a range of choices, a person of ordinary skill in the art, reading Dufrane et al., is faced with more than merely optimizing a result effective variable. Such a person would be faced with carrying out a comprehensive program of experimentation with no motivation to do so.

For these reasons, it is believed that the rejection of claims 1 – 11 should be withdrawn and the application allowed.

Additional Point

It is noted that the Examiner's Action attached Lists of References Cited by Applicant and shows that the references were considered by the Examiner. However, the list submitted on September 25, 2002 is not attached to the Action. Applicant therefore requests the Examiner to ensure that this submission has been considered and that the list in the official file be annotated to show such consideration.

Favorable reconsideration of this application is requested.

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Respectfully submitted,

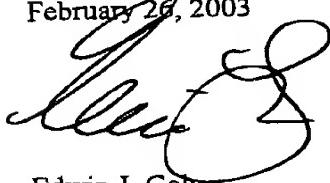


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Our File No. 45888-1
February 26, 2003

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